WHAT IS CLAIMED IS

1. A high-frequency coil device, characterized by comprising:

a dielectric substrate; and

a coil formed of a conductive layer embedded in a predetermined coil pattern in the surface of said dielectric substrate, the bottom surface and side surface of said coil being covered by said dielectric substrate.

2. The high-frequency coil device as claimed in claim 1, wherein a recess is formed in the surface of said dielectric substrate, and said coil is designed as an aerial wire separated from said dielectric substrate in said recess.

3. The high-frequency coil device as claimed in claim 1, wherein said dielectric substrate is a resin layer.

4. The high-frequency coil device as claimed in claim 2, wherein said resin layer is a polyimide layer or a liquid crystal polymer layer.

5. The high-frequency coil device as claimed in claim 1, wherein said conductive layer is a plating layer.

6. The high-frequency coil device as claimed in claim 4, wherein said plating layer has a multi-layered structure in which a nickel plating layer and a copper plating layer are laminated.

7. A method of manufacturing a high-frequency coil device comprising:

a first step of forming a resist pattern constituting a predetermined coil pattern on the surface of a base metal plate;

a second step of conducting a plating treatment on an exposed portion of the surface of said base metal plate by using said resist pattern as a mask to form a coil of a plating layer having the predetermined coil pattern;

a third step of forming a resin layer on the surface of said base metal plate containing said coil after said resist pattern is removed, and coating the surface and side surface of said coil by said resin layer; and

a fourth step of etching said base metal plate from the back surface side thereof to remove said base metal plate and expose the back surfaces of said coil and said resin layer.

8. The high-frequency coil device manufacturing method as claimed in claim 7, wherein in said second step, when the plating treatment is conducted on the exposed portion of the surface of said base metal plate by using said resist pattern as the mask, a nickel plating treatment and a copper plating treatment are successively conducted to thereby form said coil of said plating layer having a multi-layered structure in which said nickel plating layer and said copper plating layer are laminated.

9. The high-frequency coil device manufacturing method as claimed in claim 7, wherein in said third step, when said resin layer is formed on the surface of said base metal plate containing

said conductive portion, a polyimide layer or a liquid crystal polymer layer is used as said resin layer, and the surface and side surface of said coil are coated with said polyimide layer or said liquid crystal polymer layer.